

WHAT IS CLAIMED IS:

1. A method for enhancing the acoustic reflectivity of a surface *in vivo* comprising administering to said surface:
  - (a) a site-specific ligand; and
  - (b) a liquid emulsion having an outer coating composed of a material selected from the group consisting of a natural or synthetic phospholipid, a fatty acid, cholesterol, lipolipid, sphingomyelin, tocopherol, glucolipid, stearylamine, cardiolipin, a lipid with ether or ether linked fatty acids and a polymerized lipid; said ligand being conjugated to said emulsion; whereby the resulting ligand-emulsion conjugate is bound to said surface thereby causing enhancement of the acoustic reflectivity thereof for ultrasonic imaging or ultrasonic diagnostic applications.
2. A method as set forth in claim 1 wherein said ligand is conjugated to said emulsion through an intervening chemical group.
3. A method as set forth in claim 2 wherein said intervening chemical group is constituted by a hydrocarbon spacer.
4. A method as set forth in claim 1 wherein said method is carried out *in vivo* on a biological surface in a mammal.
5. A method as set forth in claim 1 wherein said emulsion contains a fluorocarbon.
6. A method as set forth in claim 1 wherein said ligand is selected from the group consisting of antibodies, viruses, chemotherapeutic agents, receptor agonists and antagonists, antibody fragments, lectins, albumins, peptides, hormones, amino sugars, lipids, fatty acids, nucleic acids, and cells prepared or isolated from natural or synthetic sources.
7. A method as set forth in claim 6 wherein said ligand is a monoclonal antibody.
8. A composition formed *in vivo* and enhancing the acoustic reflectivity of a surface to which it is bound, said composition comprising:

- (a) a site-specific ligand; and
- (b) a liquid emulsion having an outer coating composed of a material selected from the group consisting of a natural or synthetic phospholipid, a fatty acid, cholesterol, lipolipid, sphingomyelin, tocopherol, glucolipid, stearylarnine, cardiolipin, a lipid with ether or ether linked fatty acids and a polymerized lipid; said ligand being conjugated to said emulsion with the resulting conjugate being bound to said surface thereby causing enhancement of the acoustic reflectivity thereof for ultrasonic imaging or ultrasonic diagnostic applications.

9. A composition as set forth in claim 8 wherein said ligand is conjugated to said emulsion through an intervening chemical group.

10. A composition as set forth in claim 9 wherein said intervening chemical group is constituted by a hydrocarbon spacer.